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Section I

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Accounting For Fully Depreciated Assets

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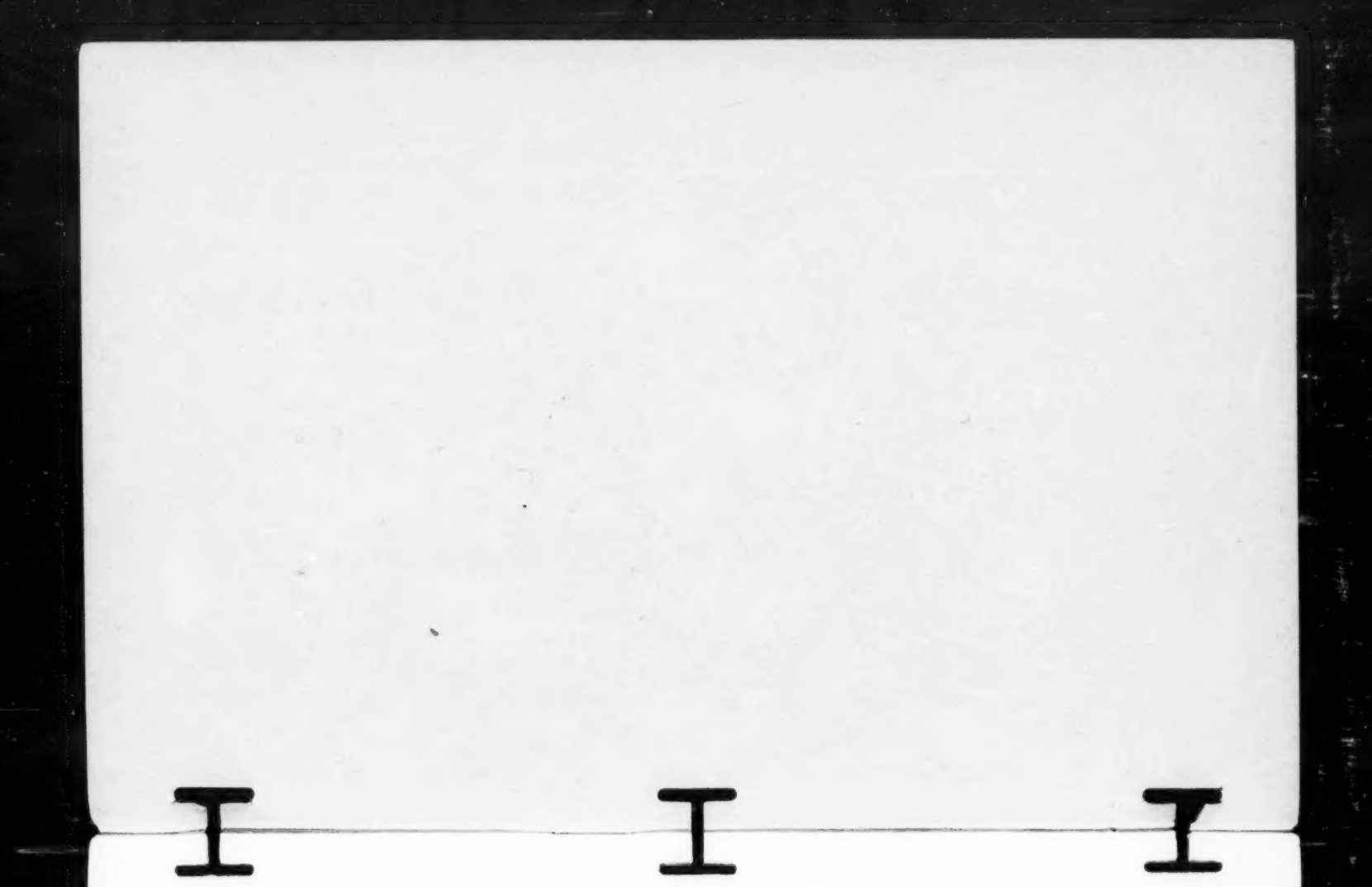

Accounting For Fully Depreciated Assets

By

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EDITORIAL DEPARTMENT NOTE

The subject of Depreciation is a hardy perennial among debatable matters in accounting. It is also one subject that increases in importance as larger amounts are invested in depreciable property. At the present time the depreciation policy of American corporations has been characterized by the statement that "there isn't any", and this seems an apt appraisal of the current situation.

However, as in other subjects in the field of accounting, the presence of the Income Tax Law is forcing corporations to adopt sounder methods of handling this important item. Particularly is this true with reference to fully depreciated assets.

The author of our paper this time, J. C. Cassel, is a member of the firm of Wall, Hardman and Lane which is the Dayton division of Pace, Gore and McLaren. His college days were interrupted because of conditions brought about by the Great War. He soon gained some valuable accounting experience, however, in a foundry and with a munitions manufacturer. He had two years' experience, also, in teaching accounting before he went with the Treasury Department engaged on field audits of taxpayers' returns. In 1920 he entered the employ of his present firm and has been interested primarily in income tax matters since that time.

Mr. Cassel is a member of our Dayton Chapter and prepared this paper as a result of the contest carried on in that chapter last year. He is a C.P.A. of Ohio and Indiana and a member of the American Society of Certified Public Accountants and a Fellow of the Ohio Society of Certified Public Accountants.

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ACCOUNTING FOR FULLY DEPRECIATED ASSETS

SINCE 1917, accountants and engineers have paid more attention to the subject of accounting for fully depreciated assets than they did prior to that time. To the U. S. Treasury Department belongs the credit for having stirred up a more lively interest in this much neglected subject. Many taxpayers who failed to account for fully depreciated assets properly in their income tax returns found, upon examination of their returns by the U. S. Treasury Department, that it would pay them to give some time and attention to the correct methods of computing depreciation actually sustained. Through the influence of the accountants of the U. S. Treasury Department and the information obtained from them, many corporations have adopted more improved and acceptable methods of eliminating the depreciation on assets that had become fully depreciated. As the result, this subject is now more generally given the attention which it rightfully deserves.

During the years 1918 to 1922, the U. S. Treasury Department conducted its field audits of the returns for the years during which the excess profits taxes were in force. During that time, the Department made a special effort to check the taxpayer's depreciation schedules for fully depreciated assets not eliminated. Many accountants failed to make the necessary reduction in the depreciation base for property units, the cost of which had been recovered in previous years. Such accountants found themselves embarrassed when field audits of the returns of their organizations were made by the Department. So frequent were these embarrassments during the years 1918 to 1922, that it appeared as though the income tax examiners were posing as specialists in audits of depreciation rather than general investigators of federal income tax returns.

In the earlier days of the administration of the federal excess profits tax laws, each auditor or field agent was given a standard schedule by which he was expected to determine the amount of the fully depreciated assets, if any. Under the original plan of the Department, in case the taxpayer did not maintain a complete plant ledger of the fixed assets, the examiner was expected to collect the amounts of the annual purchases of the various plant assets which were likely to become fully depreciated prior to or during the taxable year under review. From the data so obtained, the federal

examiner prepared a very elaborate depreciation schedule for each classification of the property accounts. If he started with the annual purchases of the year 1900 and extended his exhibit to and including the year 1918, his completed schedule would have required a sheet containing nineteen or twenty columns to tabulate the depreciation by years for the nineteen-year period and a like number of lines for the annual purchases acquired during that period.

At the conclusion of a typical field audit by the Department, it was generally customary for the examiner to present a tentative report of his findings to a representative of the taxpayer. In so doing, he displayed his depreciation schedules and summaries containing a mass of figures. At the same time he stated that a certain sum in additional taxes was found to be due according to his findings. It was then that the taxpayer was apprised of the fact that the additional tax was brought about because of the failure of the taxpayer's accountant to eliminate the fully depreciated assets. With no thought of adding to the embarrassment of the company's accountant, the federal agent may have stated that certain of the assets upon which depreciation was claimed in the taxpayer's returns had been depreciated to the extent of 150% to 200% of their cost.

It is believed that during the past eight or ten years, many examinations of the U. S. Treasury Department have resulted in a similar manner. Such experiences have proved to be awakenings of both the public and private accountants, thus resulting in a more lively interest in the methods and means of accounting for fully depreciated assets.

In the author's experience both as a federal internal revenue examiner and as a practicing public accountant, he has noted that many improvements have been made in the systems of accounting for fully depreciated assets since the U. S. Treasury Department first introduced its original form of depreciation schedule which became popular in 1918 and which had been in more or less general use up to a year or two ago. The author hopes to point out the progress that has been made in the revisions that have been adopted by accountants and many examiners of the U. S. Treasury Department. In making an explanation of the revisions through the

use of different solutions to a specific problem, an effort will be made to show why the first attempts to account for fully depreciated assets, by what seemed to be the simplest method, did not always yield correct results. A hypothetical problem will be presented in such form as to enable the reader to understand the various principles involved. Several solutions will be offered to show the advantages or disadvantages of the different methods that are being used to account for fully depreciated assets.

Problem

The X Y Z Company's record of additions and dispositions to its Property Account No. 31 is tabulated as follows:

Purchases:

Year Acquired	*Property Unit No.*	*Cost*	
1922	10	$100.00	
	11	140.00	$240.00
1923	12	200.00	
	13	220.00	
	14	300.00	720.00
1924	15	120.00	
	16	80.00	200.00
1925	17	.....	240.00
1926	18	180.00	
	19	320.00	500.00
1927	20	400.00	
	21	160.00	560.00
1928	22	640.00	640.00
Total			$3,100.00

Disposals or Retirements:

Year of Disposal	*Year of Acquisition*	*Property Unit No.*		*Cost*
1924	1922	10		$100.00
1925	1922	11		140.00
1926	1924	15	$120.00	
	1925	17	240.00	360.00
1927	1926	19		320.00
	Total			$920.00
Balance in the asset account at December 31, 1928				$2,180.00

Depreciation is to be computed at an annual rate of 25% for the years 1922 to 1924, inclusive, and also for the years 1926 to 1928, inclusive. For 1925, an accelerated rate of 30% is to be employed on account of overtime work.

The acquisitions are assumed to have been made on July 1 of each year. Property units disposed of are to be depreciated for one-half of the year in which the sale or disposition was made.

Three solutions to the problem are presented to illustrate the principles involved and the more recent attempts to introduce changes in the older systems of accounting for fully depreciated assets. These three solutions are briefly described as follows:

Solution No. 1:

Depreciation is computed *unscientifically* on the annual net additions to the asset, the depreciation thereon being accumulated in dollars and cents.

Solution No. 2:

Depreciation is computed *scientifically* on the annual purchases added to the asset account. The depreciation of the annual purchases and of items disposed of are shown separately. Depreciation thereon is accumulated in dollars and cents in order to determine the year during which the respective annual purchases become fully depreciated.

Solution No. 3:

Depreciation is computed scientifically on the unextinguished assets remaining on hand at the end of the respective periods, the depreciation on the annual acquisitions being accumulated in percentages only, in order to determine when they become fully depreciated.

SOLUTION NO. 1

In Exhibit A, Solution No. 1 is presented to illustrate one common form of depreciation schedule. It has been used successfully in many of the smaller organizations that had few disposals of property units prior to the time they became fully depreciated. In any case where large dispositions of property units occur, this same type of schedule results in some very glaring errors in the amount of the annual depreciation allowed. Errors occur for the first time in the year during which a reduction is made in the amount of the depreciation on account of fully depreciated assets.

In case of Solution No. 1, only one instance need be cited to show how unscientific and illogical the computation under this method proves to be. From the property records, it is found that the 1922 purchases of Property Units No. 10 and No. 11 were disposed of during the years 1924 and 1925. Exhibit A, containing Solution No. 1, shows that during the year 1926, the sum of $18.00 may be taken on the 1922 assets previously disposed of, in order to recover the remainder of their cost through charges for depreciation. If this were the only misrepresentation of the actual facts, the solution might be accepted as accurate enough to record the loss arising from depreciation, which is subject to such wide variations, even when the greatest care is exercised in fixing the rate and other factors entering into its determination.

The second error in principle is less excusable than the first one. By accumulating the depreciation on the net additions to the asset rather than on the actual purchases of each year, it was necessary to show $100.00 as the net cost of assets acquired in the year 1924. As a matter of fact, the total purchases amounted to $200.00 and the disposition or retirement of Property Unit No. 10 costing $100.00 resulted in the net addition for 1924. By giving no decognition to the disposal in the elimination of the fully depreciated

EXHIBIT A

THE X. Y. Z. COMPANY
SCHEDULE OF DEPRECIATION—SOLUTION NO. 1
From January 1, 1922 to December 31, 1928

Year of Purchase	Net Additions to Assets	Depreciation Allocated to Respective Years 1922 25%	1923 25%	1924 25%	1925 30%	1926 25%	1927 25%	1928 25%	Total
1922	$ 240.00	$ 30.00	$ 60.00	$ 60.00	$ 72.00	$ 18.00	$	$	$ 240.00
1923	720.00	....	90.00	180.00	216.00	180.00	54.00	.....	720.00
1924	100.00	....	....	12.50	30.00	25.00	25.00	7.50	100.00
1925	100.00	....	....	.....	15.00	25.00	25.00	25.00	90.00
1926	140.00	....	....	.....	.....	17.50	35.00	35.00	87.50
1927	240.00	....	....	.....	.....	.....	30.00	60.00	90.00
1928	640.00	....	....	.....	.....	.....	.....	80.00	80.00
Total	2,180.00	30.00	150.00	252.50	333.00	265.50	169.00	207.50	1,407.50
Depreciation on disposals debited to reserve per detail below	.....	....	....	50.00	108.50	132.00	80.00	.....	370.50
Annual net increase in reserve		30.00	150.00	202.50	224.50	133.50	89.00	207.50	1,037.00
Reserve for depreciation.....		$30.00	$180.00	$382.50	$607.00	$740.50	$829.50	$1,037.00	

Details of Depreciation on Disposals:

Property	Year of Disposal	Year Acquired	Cost	Depreciation Accumulated to Date of Sale Total Per Cent	Amount
Unit No. 10.....	1924	1922	$100.00	50	$ 50.00
11.....	1925	1922	140.00	77½	108.50
15.....	1926	1924	120.00	55	66.00
17.....	1926	1925	240.00	27½	66.00
19.....	1927	1926	320.00	25	80.00

assets, this method results in an error of $25.00 in the 1927 depreciation of the assets acquired in 1924. The elimination of Unit No. 10 from the depreciation base was accomplished in 1927 by dropping the entire $240.00, representing 1922 purchases, from the cost subject to depreciation as indicated by the vacant space in the first line under the column for the year 1927. Since the 1924 purchases have also been reduced on account of the disposal of Property Unit No. 10, the depreciation on the 1924 acquisitions has been understated to the extent of $25.00, due to the duplicate elimination of the $100.00 from the depreciation base. The same error is made in the duplicate elimination of Property Unit No. 11, acquired in 1922 and disposed of in 1925. It is eliminated once in 1927 on account of having been fully depreciated and again by reason of taking it as a deduction from the total purchases of the year 1925.

In order to differentiate between the three principal systems being used to account for fully depreciated assets, where there is no plant ledger in use, the plan followed in Solution No. 1 will be referred to as the "unscienific dollar-and-cent method . It is considered unscientific because no provision is made for the elimination of the disposals from the purchases of the year during which they were acquired. It is described as the *dollar-and-cent* method because accumulations of the depreciation of annual purchases or net additions is stated in amounts or money values instead of in percentages.

Whatever may be said in favor of the unscientific dollar-and-cent method will carry little weight in face of the errors which eventually are disclosed when it is continued in operation over a series of years. However, to the novice it looks very simple. Its simplicity is its only advantage over the methods followed in Solutions No. 2 and 3.

The unscientific dollar-and-cent method was previously used by the Income Tax Unit of the U. S. Treasury Department in numerous cases where the taxpayer had ignored its accounting for fully depreciated assets. Obviously, the Department should not be subjected to criticism for having done so. The method has also been selected voluntarily by many of the smaller organizations with the hope of saving the expense of the operation of a more elaborate

system such as the percentage method or the plant ledger. Many instances could be cited to show that the selection of this system in the hope of curtailing the accounting expense proved to be an injudicious choice because of additional income taxes resulting therefrom. In any event, the dollar-and-cent method, no matter how unscientific it may have been, is more satisfactory and more accurate than the old practice of allowing the reserve for depreciation to accumlate until it equals the cost of the asset or the plan of depreciating on declining balances without maintaining a reserve at all.

Under Solution No. 1, the reserve for depreciation of Property Account No. 31 amounted to $1,037.00 as of December 31, 1928. At the bottom of Exhibit A, details of depreciation on the retirements, to July 1 of the year in which they were disposed of, are shown with respect to each property unit. The items should appear on this record in the order in which disposition was made of them, so as to collect the total amount debited to the reserve for depreciation during each respective year.

SOLUTION NO. 2

The second solution, set forth in Exhibit B, represents a slight modification of the plan followed in solving the problem under the unscientific dollar-and-cent method presented in Exhibit A. It may be noted that the headings and general plan are practically the same as in the case of Solution No. 1. The sole difference between the two solutions lies in the method of recording the disposals of property units.

Under Solution No. 2, instead of entering, in the first column, the *net* additions made in the asset account during each calendar year, the total purchases for each year are entered in black and the dispositions are then recorded in more or less detail in red (amounts in parentheses).

In Solution No. 2, depreciation on the total annual purchases is extended at the rate in force each year until the total value is recovered, as was done in case of the solution given in Exhibit A. In order to make a reduction in the depreciation on account of property units disposed of, negative depreciation is computed on such items beginning with the year of disposal. In the year of the disposal, depreciation is computed on the cost of the item retired

THE X. Y. Z. COMPANY — EXHIBIT B

SCHEDULE OF DEPRECIATION—SOLUTION NO. 2

From January 1, 1922 to December 31, 1928

			Depreciation Allocated to Respective Years							
			1922 25%	1923 25%	1924 25%	1925 30%	1926 25%	1927 25%	1928 25%	Total
1922	Purchases	$ 240.00	$30.00	$ 60.00	$ 60.00	$ 72.00	$ 18.00	$	$	$ 240.00
1923	Purchases	720.00	....	90.00	180.00	216.00	180.00	54.00	.....	720.00
1924	Purchases	200.00	....	....	25.00	60.00	50.00	50.00	15.00	200.00
	Disposal—Unit No. 10—Acquired 1922	(100.00)	....	....	(12.50)	(30.00)	(7.50)	....	.....	(50.00)
1925	Purchases	240.00	....	....	....	36.00	60.00	60.00	60.00	216.00
	Disposals—Unit No. 11—Acquired 1922	(140.00)	....	....	....	(21.00)	(10.50)	....	.....	(31.50)
1926	Purchases	500.00	....	....	....	....	62.50	125.00	125.00	312.50
	Disposals—Unit No. 15—Acquired 1924	(120.00)	....	....	....	....	(15.00)	(30.00)	(9.00)	(54.00)
	Disposals—Unit No. 17—Acquired 1925	(240.00)	....	....	....	....	(30.00)	(60.00)	(60.00)	(150.00)
1927	Purchases	560.00	....	....	....	....	....	70.00	140.00	210.00
	Disposals—Unit No. 19—Acquired 1926	(320.00)	....	....	....	....	....	(40.00)	(80.00)	(120.00)
1928	Purchases	640.00	....	....	....	....	....	....	80.00	80.00
	Total cost and depreciation allowable each year	2,180.00	30.00	150.00	252.50	333.00	307.50	229.00	271.00	1,573.00
	Depreciation on disposals debited to reserve		....	....	50.00	108.50	132.00	80.00	.....	370.50
	Annual net increase in reserve		30.00	150.00	202.50	224.50	175.50	149.00	271.00	1,202.50
	Reserve for depreciation		$30.00	$180.00	$382.50	$607.00	$782.50	$931.50	$1,202.50	$1,202.50

Figures in parentheses indicate deductions.

at one-half of the rate in force during that year and the amount so obtained is extended in red in the appropriate column. Thereafter, depreciation on the unit disposed of is computed at the effective rate and the negative depreciation so obtained is entered in red until the year in which such unit would have been exhausted if it had not been retired. To test out the correctness of the negative depreciation in the year of exhaustion, the following trial computation is made with respect to Property Unit No. 10 acquired in 1922 and disposed of in 1924:

Cost of item to be recovered.....		$100.00
Depreciation taken on the item to date of sale per Exhibit A.....	$50.00	
Negative depreciation for the years 1924 and 1925.....	42.50	92.50
Remainder of negative depreciation in 1926 per Exhibit B.....		$ 7.50

By adopting the plan of recording the individual retirements of property units together with the year each one was purchased, it is possible to carry through a correct continuous schedule arranged according to the same general outline set forth in Solution No. 1. The change in the form results in a correction of the errors contained in Exhibit A. For this reason, it may be designated as the "scientific dollar-and-cent method". By the use of Solution No. 2, the reserve for depreciation at December 31, 1928 is found to amount to $1,202.50 compared with $1,037.50, or a difference of $165.00. With the development of an error of 13.7% over a period of seven years, it would seem to the author as though many taxpayers could profitably check over their schedules and make appropriate adjustments in their depreciation in case the "unscientific dollar-and-cent method" had ever been used to account for fully depreciated assets.

The "scientific dollar-and-cent method" has been growing unpopular in later years because where there are so many negative depreciation amounts, occasioned by frequent or numerous disposals, it has become rather cumbersome and unwieldy. Another objection has also been noted. In any case, where the Treasury Department restored capital items in expense in prior years or has

reduced the rates of depreciation, the form of the schedule did not readily adapt itself to the adjustments without discarding the entire schedule and rebuilding it from the very beginning. Furthermore, it does not show at a glance how much of the asset balance has been fully depreciated, which information is often desired for tax purposes and for comments on financial statements.

SOLUTION NO. 3

In Exhibit C, the third illustrative solution is presented. It is supported by Exhibit D showing the depreciation rate schedule for the property account from January 1, 1922 to December 31, 1932. The rate schedule was extended to 1932 upon the assumption that the depreciation rate will not change in future years. It was carried through to the end of 1932 to illustrate more clearly how it operates to the end of the period in which the 1928 acquisitions will become fully depreciated.

A depreciation rate schedule is often used to determine when assets become exhausted through charges for depreciation. Any system which uses percentage accumulations for this purpose is aptly called "the percentage method of accounting for fully depreciated assets". It appears to commend itself to those accountants who feel that it will save some time in its operations and others who wish to improve their unscientific dollar-and-cent method with its mingled mass of meaningless figures. Those who have adopted the percentage method are pleased with the way it operates and the information it furnishes.

In the depreciation rate schedule, Specimen No. 2 is presented as an optional method for the determination of the year of exhaustion and for the reduced rate of depreciation to be taken on annual acquisitions in the last year during which they may be properly depreciated. It is thought that the shorter form, when once understood and put into operation, should prove to be more desirable because it is more condensed and also because it eliminates repetitions of figures that serve no other purpose than to simplify the processes of arithmetic, used to make the combinations of the percentages.

It will be seen that the basic information needed for the elimination of assets fully depreciated by the percentage method is contained in the depreciation rate schedule which may be prepared

THE X. Y. Z. COMPANY EXHIBIT C

SCHEDULE OF DEPRECIATION—SOLUTION NO. 3

From January 1, 1922 to December 31, 1928

		Detail	Asset Balance	Exhausted Assets	Depreciable Assets	Rates	Depreciation Detail	Total	Reserve
1922	Additions	$240.00			$ 240.00	12.5F		$ 30.00	$ 30.00
1923	January 1, Balance		$ 240.00		240.00	25. B	$ 60.00		
	Gross Additions	720.00			720.00	12.5F	90.00	150.00	150.00
1924	January 1, Balance		960.00		960.00	25. B	240.00		180.00
	Gross Additions	200.00							
	Deductions	100.00							(50.00)
	Net Additions	100.00			100.00	12.5F	12.50	252.50	252.50
1925	January 1, Balance		1,060.00		1,060.00	30. B	318.00		382.50
	Gross Additions	240.00							
	Deductions	140.00							(108.50)
	Net Additions	100.00			100.00	15. F	15.00	333.00	333.00
1926	January 1, Balance		1,160.00		1,160.00				607.00
	Transfer Fully Depreciated Items								
	1922 Gross Additions	240.00							
	Less Deductions to Dec. 31, 1925	240.00				7.5L			
	Net Balance Depreciation Base		1,160.00		1,160.00	25. B	290.00		

	Add 1926 Additions	500.00							(132.00)
	Less 1926 Deductions	360.00							
		140.00			140.00	12.5F	17.50	307.50	307.50
1927	January 1, Balance		1,300.00		1,300.00	25. B			782.50
	Assets Exhausted in 1927:								
	1923 Gross Additions			$720.00	(720.00)	7.5L	54.00		
	New Balance for Depreciation Base		1,300.00	720.00	580.00	25. B	145.00		
	Add 1927 Addition	560.00							
	Less Deductions	320.00							(80.00)
	Net Additions	240.00			240.00	12.5F	30.00	229.00	229.00
1928	January 1, Balance		1,540.00	720.00	820.00	25. B	205.00	—	931.50
	Assets Exhausted in 1928:								
	1924 Gross Additions	200.00							
	Less Deductions in 1926	120.00		80.00	(80.00)	7.5L	6.00		
	New Balance for Depreciation Base		1,540.00	800.00	740.00	25. B	185.00		
	Add 1928 Additions	640.00			640.00	12.5L	80.00	271.00	271.00
1929	January 1, Balance		2,180.00	800.00	740.00			1,573.00	1,202.50

F—*Fractional* rate used during the first year assets are acquired.
B—Rate on balance at beginning of year.
L—Rate in last year depreciation may be taken.

THE X. Y. Z. COMPANY — EXHIBIT D

DEPRECIATION RATE SCDEDULE FOR PROPERTY ACCOUNT NO. 31

From January 1, 1922 to December 31, 1932

	Annual Rates	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932
SPECIMAN NO. 1—Annual Accumulated rates of depreciation:												
1922	25.	12.5										
1923	25.	25.	12.5									
1924	25.	25.	25.	12.5								
1925	30.	30.	30.	30.	15.							
1926	25.	7.5	25.	25.	25.	12.5						
1927	25.	....	7.5	25.	25.	25.	12.5					
1928	25.	....	....	7.5	25.	25.	25.	12.5				
1929	25.	....	....	....	10.	25.	25.	25.	12.5			
1930	25.	....	....	....	....	12.5	25.	25.	25.	12.5		
1931	25.	....	....	....	....	....	12.5	25.	25.	25.	12.5	
1932	25.	....	....	....	....	....	....	12.5	25.	25.	25.	12.5
Total for composition of reserve		100.	100.	100.	100.	100.	100.	100.	87.5	62.5	37.5	12.5

SPECIMEN No. 2:

Year of Acquisition of Property Fully Depreciated	*Year of Exhaustion*	*Rates on Balances* Yr. No.	Percent	*Accumulations of Annual Rates of Depreciation* Total Rates From Yr. No.	to Yr. No.	Percent	Fractional Rates Year of Acquisition	Year of Exhaustion	*Total*
	1922	1	25.						
	1923	2	25.						
	1924	3	25.						
	1925	4	30.						
1922	1926	5	25.	2	4	80.	12.5	7.5	100.
1923	1927	6	25.	3	5	80.	12.5	7.5	100.
1924	1928	7	25.	4	6	80.	12.5	7.5	100.
1925	1929	8	25.	5	7	75.	15.	10.	100.
1926	1930	9	25.	6	8	75.	12.5	12.5	100.
1927	1931	10	25.	7	9	75.	12.5	12.5	100.
1928	1932	11	25.	8	11	75.	12.5	12.5	100.

with ease and with a minimum amount of time and effort. This plan makes use of the same information as was needed for the correct dollar-and-cent method. In each case, it is necessary to obtain the amount of the annual purchases, the accumulated totals of the dispositions made from the annual purchases of the respective years, the rates of depreciation to be deducted on the balances in the asset account at the beginning of the year and the rates on the additions made during the year. In the percentage method, the depreciation to be taken on assets becoming exhausted in a given year, is first recorded in per cent of the cost of such items. This percentage is being referred to as the "last year's rate" or the "rate for the year of exhaustion". After this rate is obtained in a more or less mechanical manner, it is applied to the annual purchases which became exhausted during such year and which remained on hand as of the beginning of the year. The result so obtained represents the amount of depreciation needed to recover the cost of such assets undisposed of at the beginning of the year of exhaustion. For instance, in Exhibit C, the final depreciation to be taken in 1928 on the assets acquired in 1924 and undisposed of at the beginning of 1928, is shown to be 7.5% of their cost in the amount of $80.00, making a total of $6.00. In Exhibit B, the same result is reflected but it was obtained by more complicated processes described as follows:

The total depreciation on the 1924 purchases of $200.00, deducted from date of acquisition to December 31, 1927, amounted to $185.00, leaving the sum of $15.00 to be taken in 1928, the year of exhaustion. After this it is necessary to check through the schedule for disposals made out of the group of assets acquired in 1924. Having found that in 1926 a sale was made of a 1924 item costing $120.00, it is necessary to compute the negative depreciation thereon in the amount of $9.00 for the year 1928. This negative depreciation of $9.00 subtracted from the $15.00 previously computed equals $6.00 as the net depreciation taken on the 1924 assets during the year 1928. It will be seen how long and complicated the calculations become in case there are numerous disposals to be accounted for under the dollar-and-cent method.

The advantages of the form of depreciation schedule presented

in Exhibit C over the other methods discussed herein may be summarized as follows:

1. It shows at a glance what part of the balance in the asset account is subject to the normal rate of depreciation and what portion has become fully depreciated.

2. It is more readily verified because of the segregation of the asset balances at a given date into four classes, namely, depreciable balance as of the beginning of the year, assets fully depreciated at the beginning of the year, assets becoming fully depreciated during the year and the net additions of depreciable assets made during the year.

3. In case of errors in prior years, adjustments can be readily entered in the form in the year during which the books of account were adjusted without making it necessary to revamp the entire schedule. Changes in rates for prior years may merely be entered in the depreciation rate schedule or if necessary, a new one may be prepared readily.

4. In case of charges to the depreciation reserve for major replacements and renewals without making any retirements from the asset account, appropriate provisions therefor may be made either in the rates for the year of exhaustion or in the time the asset became fully depreciated without impairing the usefulness of the schedule.

5. The percentage method simplifies the operations of the work of the accountant.

6. Although it is reduced to a more compact form in comparison with the dollar- and-cent method, it contains much more statistical information of a valuable nature.

The percentage method contemplates that an accurate summary record of all disposals shall be maintained. Such a record should contain a description of the property disposed of, its cost, the year of acquisition, the year of disposal and such other information as might be deemed advisable, such as data in regard to the depreciation sustained to the date of retirement, the amount realized therefrom when sold, and the profit or loss from the disposition of the capital asset. As the acquisitions for any particular year become fully depreciated according to the depreciation rate schedule, these records will give the information needed to obtain the

amount of the reduction in the base. For instance, Exhibit C shows how disposals are deducted from the corresponding annual acquisitions to determine the amount of any eliminations from the rate base for the years 1926 and 1928.

The depreciation reserve at December 31, 1928 obtained by the percentage method was found to be $1,202.50, which is the same result set forth in Solution No. 2.

Some accountants insist that depreciation should be computed on the monthly balances in the asset account. Other accountants and executives prefer to establish a budget for the depreciation at the beginning of the year and then continue the monthly charge without change until the last month or the last two months of the accounting period when an additional provision is made for depreciation on the net additions of the year at one-half of the normal rate in force. The arguments advanced by the proponents of the two systems appear to be so plausible it is difficult to decide which is the better method to follow. After making numerous tests to determine whether, over a period of years, there is any material difference between the depreciation allowable on the monthly balances and that determined by taking one-half of the normal rate on the purchases less the disposals, the author has come to the conclusion that the latter method is preferable where the annual additions are not too large, and where no plant ledger is maintained. Where a plant ledger is operated and a reserve for each unit of property is accumulated in amount, the system of depreciating on monthly balances is preferable, although not essential.

Some accounting authorities advocate writing off all assets that have become fully depreciated regardless of whether or not they are continued in use. The author admits that this procedure would greatly simplify all accounting for fully depreciated assets. Since so many corporations have continued to carry fully depreciated assets in the plant accounts until they are disposed of, the same plan was followed in the hypothetical problem and the illustrative solutions presented in this treatise.

Proof of Reserve for Depreciation

It has been found important to prepare a proof of the reserve for depreciation every three or four years beginning with the first year in which the rate base is reduced for fully depreciated assets.

THE X. Y. Z. COMPANY EXHIBIT E

SUMMARY OF PROPERTY ACCOUNT AND RESERVE FOR DEPRECIATION
NO. 31 SHOWING COMPOSITION OF BALANCES

As of December 31, 1928

	Disposals Allocated to Year of Purchase	Year of Disposals	Cost	Gross Annual Purchases	Assets Remaining Dec. 31, 1928	December 31, 1928 Rates Accumulated	Deprec'n. Accumulated
Acquisition of 1922							
Property Unit No. 10.....		1924	$100.00				
" " " 11.....		1925	140.00				
Total			240.00	$ 240.00	$		
Acquisitions of 1923			.....	720.00	720.00	100	$ 720.00
Acquisitions of 1924:							
Property Unit No. 15.....		1926	120.00				
" " " 16.....			.....				
Total			120.00	200.00	80.00	100	80.00
Acquisition of 1925:							
Property Unit No. 17 disposed of.....		1926	240.00	240.00	.....	90	.....
Acquisitions of 1926:							
Property Unit No. 19 disposed of.....		1927	320.00	500.00	180.00	62.5	112.50
Acquisitions of 1927.....				560.00	560.00	37.5	210.00
Acquisitions of 1928.....				640.00	640.00	12.5	80.00
Totals			$920.00	$3,100.00	$2,180.00		$1,202.50

Such a proof often enables the accountant to detect clerical errors as well as errors in principle.

Exhibit E entitled Summary of Property Account No. 31 and Reserve for Depreciation showing Composition of Balances as of December 31, 1928, is presented to illustrate a proof of the result obtained in the solutions of the hypothetical problem discussed in the foregoing paragraphs. The schedule simply allocates the reserve at December 31, 1928 to the various assets remaining on hand as of that date, arranged according to year of acquisition.

The proof or composition of the reserve prepared in the manner illustrated in Exhibit E has served several very useful purposes, the most important of which are summarized as follows:

1. Correction of negligible errors that creep into the depreciation reserve account of minor differences in adjustments for retirements through sales or abandonments of property units, or failure to reduce the reserve for such retirements.
2. Correction of clerical errors in making computations of annual depreciation during the current period or prior years.
3. Detection of excessive depreciation taken in prior years due to a failure to make the retirements of fully depreciated assets.
4. Correction of the accumulated depreciation rate to provide for any major renewals and replacements charged to the reserve without recording, in the asset account, the facts relative to the rebuilding of property units to which such renewals related.

It happens very often that the errors disclosed in a composition or proof of the reserve are so negligible as to make it unnecessary to adjust either the current profit and loss or the surplus account. In that event, the author has found it advisable to make an adjustment in the depreciation accumulated on the oldest depreciable assets shown in the composition exhibit in a sufficient amount to equal the reserve which the schedule was intended to prove. A corresponding correction is made in the accumulated rate of depreciation on such assets as of the same date. A footnote is then added to the depreciation rate schedule showing what increase or decrease is to be made in the rate for the year of exhaustion to take care of such error or errors. This procedure has been found to be particularly valuable in certain cases where the taxpayer began to retire fully depreciated assets in a period

following the year during which such eliminations should have been made.

In conclusion, the reader's attention is invited to the fact that no effort was made in this discussion to minimize the advantages of the different kinds of plant ledgers now in successful operation. A detailed plant ledger will automatically account for fully depreciated assets much more accurately than the percentage method presented in Exhibit C. The author favors the percentage method of accounting for fully depreciated assets for those businesses that find existing conditions unfavorable to the installation of an adequate plant ledger. If all the units of property embraced in the hypothetical problem discussed in this treatise were subject to the same rate of depreciation, the results obtained by the percentage method suggested would have been identical with the results obtained through the use of a plant ledger. Such a situation does not often exist. As a rule, the units of property embraced within a given ledger classification of fixed assets are subject to different and varying rates of depreciation. In case of a plant ledger, effect can be given to individual rates of depreciation on the different property units. In case of the percentage method, it must be assumed that all units in a given ledger account depreciate at the same rate. Therefore, the more general ledger accounts for depreciable assets that are maintained for property units, having approximately the same economic life, the more accurate will be the accounting under the percentage method of eliminating fully depreciated assets.

It is possible that for many years to come, most business organizations will defer the installation of a detailed plant ledger. In that event, their accountants will continue to make progressive improvements in their present systems of accounting for depreciation and for fully depreciated assets in the hope of accomplishing practically the same results as would be obtained through the use of the detailed plant ledger, with less time and expense. Their hopes may not be realized but any efforts toward improvements and progress on the part of the accountant will result either in a betterment of the present methods in use or in the advancement of the accountancy profession.

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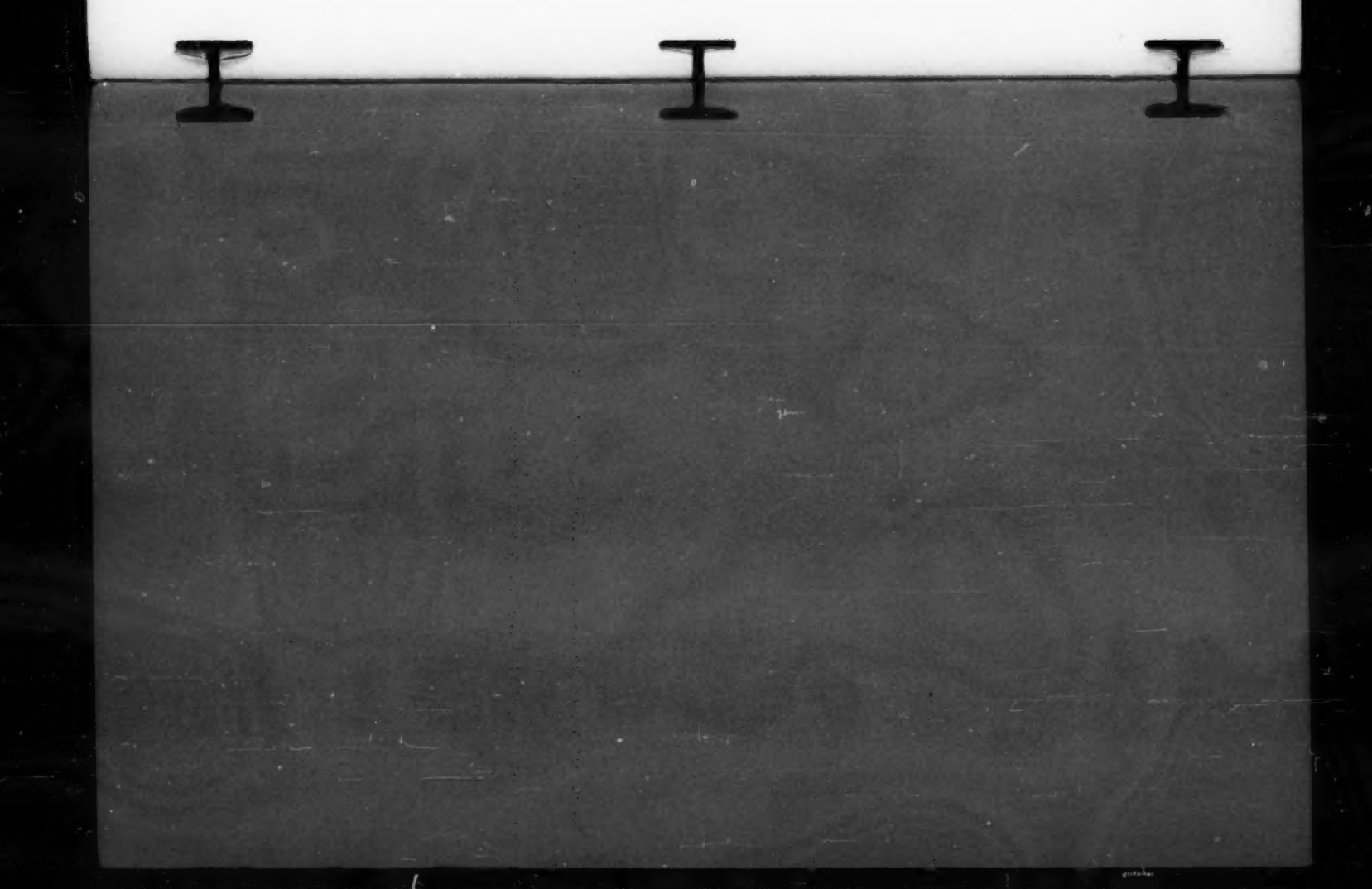

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